

Dilation of Proximal Esophageal Strictures Following Therapy for Head and Neck Cancer: Experience With Savary Gilliard Dilators

VINAY DHIR, MD, DNB, SANTHI SWAROOP VEGE, MD, DM, FACC,
K.M. MOHANDAS, MD, DNB, AND DEVENDRA C. DESAI, MD, DNB
*From the Division of Medical Gastroenterology, Tata Memorial Hospital,
Parel, Bombay, India*

Background: There is little information on dilation of proximal strictures following surgical and/or radiation therapy for head and neck cancer. We studied the feasibility and efficacy of dilating proximal strictures following therapy for head and neck cancer using Savary Gilliard dilators.

Methods: Twenty-one consecutive patients with proximal strictures resulting from surgery and/or radiation therapy of head and neck cancer were studied. Savary Gilliard dilation was performed using the standard and a modified method. Dysphagia was graded before and after dilation using a 5-point scale.

Results: Technical success, dysphagia relief, complications, and duration of relief were noted. Technical success was achieved in 20 (95%) patients. Adequate dysphagia relief was obtained in 15/20 (75%) patients, which lasted for 4–36 weeks (median 14 weeks). There were no perforations, bleeding, or deaths. Four patients required repeat dilation after a median interval of 12 weeks.

Conclusions: Savary Gilliard dilation is a safe and effective method for dilating strictures caused by therapy for head and neck cancer.

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KEY WORDS: endoscopy, hypopharyngeal cancer, dysphagia

INTRODUCTION

Head and neck cancers (HNC) account for 22–36% of all cancers in males and 13–15% of all cancers in females in India. The corresponding figures for Western populations are 8–16% and 3–4%, respectively [1]. Surgery, radiotherapy, or a combination of the two modalities is the usual therapy. Proximal strictures can occur in 10–58% of patients following treatment of HNC [2]. There are very few reports on dilation of these strictures [3–4]. We found nothing in the literature regarding dilation of these strictures using only Savary Gilliard (SG) dilators. We undertook this study to assess the technical and functional success of dilating proximal strictures following therapy for HNC using SG dilators.

MATERIALS AND METHODS

Our hospital is a tertiary referral cancer care center, where 4,000 patients with HNC are treated every year.

Over a 3-year period (1991–1994), 21 consecutive patients referred for dilation following therapy were studied. Informed consent was obtained from all patients. The patient characteristics, the primary site of cancer, and the therapy offered for the primary tumor are shown in Table I.

A history of the duration and severity of dysphagia was obtained from all patients. Dysphagia was graded on a scale of 0–V: grade 0, no dysphagia; grade I, occasional dysphagia to solid foods; grade II, persistent dysphagia to solid foods; grade III, dysphagia to semisolid foods; grade IV, dysphagia to liquidized foods; and grade V, inability to swallow clear liquids or saliva [5]. Dysphagia

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Address reprint requests to V. Dhir, M.D., D.N.B., Division of Medical Gastroenterology, Tata Memorial Hospital, Parel, Bombay, India 400012.

TABLE I. Head and Neck Cancer: Savary Gilliard Dilation for Proximal Strictures

Primary tumor and treatment used	
Tumor	
Larynx	12
Hypopharynx	7
Tongue	2
Treatment	
Radiation	3
Surgery + radiation	11
Surgery	7
Type of surgery ^a	
Total laryngectomy	12
Laryngopharyngectomy	4
Glossectomy	2

^aReconstruction was performed in 5 patients.

relief was assessed 3–7 days after the dilation. Patients were followed every two months or upon recurrence of dysphagia.

The strictures were assessed using a barium esophagogram and endoscopy. The diameter of the stricture was assessed by visual inspection during endoscopy, barium swallow study, and comparison with the spring tip of the guidewire (1.8 mm).

The dilations were performed as an ambulatory procedure using intravenous analgesia (Pentazocine 15–30 mg). Savary Gilliard dilators and guidewire (Wilson Cook, Winston-Salem, NC) were used. Dilation was performed without fluoroscopy in eight patients with straight strictures. In the remaining 13 patients with angulated strictures, diverticulae, sinus tracts, or hiatal hernia, the dilation was performed using a combination of endoscopy and fluoroscopy. The technique of dilation has been described before [6]. Not more than three dilators were passed after encountering moderate resistance to the passage of dilator, in accordance with the “rule of three” [7]. In four patients, the Savary Gilliard guidewire could not be passed across the stricture. These patients were dilated by a modified technique using an ERCP (endoscopic retrograde cholangio pancreatography) guidewire.

After a 5-Fr metal-tip catheter loaded with a 0.035” teflon-coated guidewire had been passed through the stricture, the narrow strictures were dilated using a 10-Fr biliary dilator. A modified Savary Gilliard dilator guidewire (olive tip with a hole, OTGW, Wilson Cook) was passed over the 0.035” guidewire beyond the stricture. After removing the 0.035” guidewire, the stricture was dilated with Savary-Gilliard dilators passed over the olive-tip guidewire [8]. Dilation was stopped if the patient had severe pain. The patients were observed for 2 hours after the procedure and then allowed to go home.

Technical success was defined as the ability to pass at least one dilator with moderate resistance. Adequate dilation was defined as relief of dysphagia to grade 0 or

TABLE II. Savary Gilliard Dilation for Proximal Strictures in Head and Neck Cancer

Results of initial dilation		
	#	%
Patients	21	100
Technical success	20	95
Dysphagia relief	15	75

I. Dilation was stopped when adequate dysphagia relief was obtained or as a result of technical difficulties during the procedure. Dilation was repeated in patients with recurrence of dysphagia of grade II or more, but was not repeated if the patient’s general condition was poor.

RESULTS

Patient Characteristics

The median age of the patients was 50 years (range 34–68 years), 16 male and 5 female patients. The primary tumor site was the larynx in 12 patients, hypopharynx in 7 patients, and tongue in 2 patients. The treatment modality used for the primary tumor is shown in Table I.

Stricture Details

The strictures were located at a distance of 13–19 cm (median 17 cm) from the incisors. Four strictures were irregular and 17 strictures were smooth upon barium esophagogram, which also showed axis deviation in six patients. The length of the strictures as measured from the barium esophagogram was 1–4 cm (median 2 cm).

The duration of dysphagia before dilation ranged from 4 weeks to 2 years (median 16 weeks).

Technical Results

It was not possible to place the guidewire in one patient, who had undergone laryngopharyngectomy with reconstruction followed by radiation therapy. The stricture in this patient was 3 cm long, ~1 mm in diameter, with marked axis deviation. The results of dilations are summarized in Table II. Technical success was achieved in 20 (95%) patients. Thirteen patients were dilated in one session, six patients in two sessions, and one patient in three sessions. Severe resistance to the passage of dilators was encountered in five patients, and they could not be dilated beyond 11 mm. Complications: Eight patients had transient pain. None of the patients developed perforation or other complications requiring hospitalization.

Dysphagia Relief and Follow-up Results

Adequate dysphagia relief was obtained in 15 (75%) patients; five patients had no relief. The relationship between the largest dilator passed and dysphagia relief is shown in Figure 1. One patient underwent gastrostomy

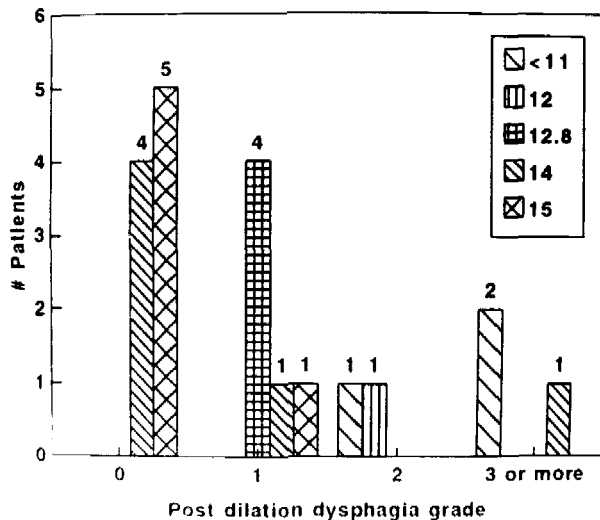


Fig. 1. Dysphagia relief according to the maximum size of dilator used.

1 week after the dilation as the brush cytology showed malignant cells and the patient did not want to come back for further follow-up. The duration of relief in the remaining patients ranged from 4–36 weeks (median 14 weeks, interquartile range 8–20 weeks). Four of these patients required a repeat dilation at a median interval of 12 weeks. All four patients could be dilated adequately without any complications. Two of these four patients had recurrence and underwent gastrostomy. The remaining 10 patients were dysphagia free at 8, 8, 8, 12, 16, 18, 20, 20, 36, and 36 weeks, respectively.

Results in Relation to Primary Treatment

The results of the dilation according to therapy for primary cancer are shown in Table III. Adequate dysphagia relief was obtained in 2 of 2 patients in the surgery without reconstruction group, in 9 of 11 patients in the surgery and radiation therapy group, 2 of 3 patients in the radiation therapy group, and 2 of 5 in the surgery with reconstruction group.

DISCUSSION

Dysphagia is a common problem after surgery and/or radiation therapy for HNC and may occur in up to 43% of patients [9–11]. The first study on dilation of proximal esophageal strictures using Peustow and Maloney dilators was reported by Kozarek [3]. Since then, only one study [4] has reported dilation in seven patients with refractory proximal strictures following surgery for HNC who were dilated using a combination of Savary Gilliard dilators, through the scope (TTS) balloons (Microvasive, Boston, MA), and Maloney dilators. As both these studies have used multiple types of dilators, it is not possible to assess the efficacy of individual dilator systems.

The major technical difficulty encountered in the present study was the inability to pass the Savary Gilliard guidewire in approximately one-fourth of patients due to acute angulation of the strictures. In four of these five patients, the modified guidewire technique was used. The only technical failure occurred because of inability to pass a guidewire across the stricture. The difficulty is probably due to the small maneuvering space for the endoscope and regional deformities in an already narrow area following surgery and radiotherapy. Furthermore, in five patients, the stricture was extremely hard and could not be dilated beyond 11 mm. This is probably because the SG dilator has a long tapered segment before the dilating segment, which buckles upon encountering an angulated and tough stricture. Although TTS balloon dilators may be more effective in this subset of patients, negotiating an acutely angulated stricture with the TTS balloons can be demanding even for the most experienced.

Dysphagia was relieved in three-fourths of our patients, and a third of them required repeat dilation after a median duration of 3 months. Successful outcome of dilation in patients with HNC depends on many other factors. The normal swallowing mechanism is disturbed following surgical alteration of the pharynx. There may be cricopharyngeal dysfunction or pseudoepiglottis formation [2]. In the presence of these factors, it may be difficult to assess failure of dilation.

Patients with reconstructive surgery did not respond

TABLE III. Results of Dilation of Proximal Strictures According to Primary Treatment for Head and Neck Cancer

Primary treatment	No. of patients	Technical success	Functional success	Duration of relief
Surgery	2	2	2	8
Surgery with reconstruction	5	4	2	18
Radiation	3	3	2	8
Surgery and radiation	11	11	9	12
Total	21	20	15	

well to dilation as only 40% of patients had adequate dysphagia relief. In conclusion, Savary Gilliard dilation is a safe and effective modality for relieving dysphagia due to stricture following therapy for HNC. A subset of patients have very hard strictures and may require alternate methods of dilation. A larger study should address the differences in dysphagia relief among the different primary treatment groups.

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